

SCOPE OF DEMAND

1. In a spacer forming method in which ink with granular spacer dispersed in solvent is jetted onto plural spacer forming positions on one of opposite substrates for maintaining a gap filled with liquid crystal, between said opposite substrates, at constant, by ink jetting method, a spacer forming method characterized in that plural drops are jetted onto each of said spacer forming positions.

2. A spacer forming method according to claim 1 in which said ink is dropped onto a crossing portion of a non-pixel region being in shape of lattice, and pixels being positioned in openings of said lattice.

3. A spacer forming method according to claim 1 in which said ink is jetted onto said spacer forming positions from plural nozzles of an ink jet head and the corresponding relative position between the nozzle and the spacer forming position is so changed that plural drops are not consequently jetted from the same nozzle onto the same spacer forming positions.

4. A spacer forming method according to claim 1 in which said ink is jetted onto said spacer forming positions from plural nozzles of an ink jet head and the corresponding relative position between the nozzle and the spacer forming position is so changed that plural drops are jetted from plural of said nozzles onto the same spacer forming position.

5. A spacer forming method according to claim 1 which comprises:
a first step of testing whether there is abnormal one or ones among nozzles of the ink jet head, or not, before said ink is jetted onto spacer forming positions;
a second step of jetting ink from normal nozzles, not jetting ink from abnormal nozzles onto the corresponding spacer forming positions; and
a third step of shifting the corresponding relative position of said nozzle and said spacer forming positions and making the normal nozzle correspond to the spacer forming positions which has corresponded to the abnormal nozzle in said second step jetting ink onto said spacer forming positions from said normal nozzles.

6. A spacer forming method according to claim 5 in which it is judged by ink jetting speed of the nozzle whether there is abnormal one or ones among nozzles of the ink jet

head, or not.

7. A spacer forming method according to claim 5 in which it is judged by ink jetting shift to the drop position of the nozzle from the predetermined position whether there is abnormal one or ones among nozzles of the ink jet head, or not.

5 8. A spacer forming method according to claim 7 in which said ink jetting shift is represented by $D \times \tan \theta$, where D represent the length of the line connecting the center of the nozzle and the center of the spacer forming positions and θ represents an angle of said line to the jetting direction of said jetting ink.

9. A spacer forming method according to claim 7 in which said shift represents as $V_s \times D/V_d$, where D the length of the line connecting the center of the nozzle and the center of the corresponding spacer forming positions, V_s a relative moving speed of the nozzle and the substrate, V_d jetting speed of the ink from the nozzle.

10 10. In a spacer forming method in which ink with granular spacer dispersed in solvent is jetted onto plural spacer forming positions from nozzles of the ink jet head, on one of opposite substrates for maintaining a gap filled with liquid crystal, between said opposite substrates, at constant, a spacer forming method characterized in that it comprises:

a first step of testing whether there is abnormal one or ones among nozzles of the ink jet head, or not, before said ink is jetted onto spacer forming positions;

20 a second step of jetting ink from normal nozzles, not jetting ink from abnormal nozzles onto the corresponding spacer forming positions; and

a third step of shifting the corresponding relative position of said nozzle and said spacer forming positions and making the normal nozzle correspond to the spacer forming positions which has corresponded to the abnormal nozzle in said second step jetting ink onto said spacer forming positions from said normal nozzles.

11. In a spacer forming apparatus ink with granular spacer dispersed in solvent is jetted onto plural spacer forming positions from nozzles of the ink jet head, on one of opposite substrates for maintaining a gap filled with liquid crystal, between said opposite substrates, at constant, a spacer forming apparatus characterized in that it comprises:

30 ink jetting observing means for observing ink jetting of said nozzle;

abnormal nozzle judgment part for judging abnormal jetting nozzle on the basis of the observing result of said jetting observing means and

a control part by which ink is not jetted from the abnormal nozzle, ink is jetted from normal nozzles onto spacer forming positions, the relative corresponding positions between

5 the nozzle and spacer forming positions are shifted so that the spacer forming positions having corresponded to the abnormal nozzle is made to correspond to the normal nozzle and ink is jetted onto the spacer forming positions from the normal nozzle.